

Interactive comment on “Maximizing the usefulness of flood risk assessment for the River Vistula in Warsaw” by A. Kiczko et al.

Anonymous Referee #1

Received and published: 19 August 2013

Major comments The topic addressed by the paper is an "evergreen" in the field of flood risk evaluation. The comparison between deterministic and stochastic approaches has been studied by different authors and presented in several papers in the scientific literature. As matter of fact some references are missing so I suggest the authors to include it in the list.

Another important point to be commented is, in my, opinion, the choice of the hydraulic model. The area interested by flooding is on the left-bank of the river and show typical peculiarities of a 2-D domain (large and flat). Further this area is hydraulically connected to the river when levee breaches occurred. In my opinion, the authors should use a 2-D model to analyse this domain capable to include also a levee breach scheme. I cannot understand how the HEC-RAS has been used to model these

C931

breaches. Please supply this information. As HEC-RAS considers weir coefficients to connect the river with storage areas the authors should have been considered also these parameters during the calibration phase. The authors stated they used a 1-D model for speed-up the calibration and uncertainty analysis as the use of a 2-D model is time consuming. Actually, I don't agree with this as the flood risk maps are essentially prepared for planning and risk management purposes, so you can have plenty of time to prepare them. They are not used for real-time flood control.

Last but not least, the paper is not clear in some parts so it needs a careful language check before re-submission to fix up some problems with English.

Minor comments - Page 2699, line 6-7, What do you exactly intend with the expression "parameterisation of the flood frequency curve...."? This lines are not clear, please rewrite and explain. - Page 2702, line 3, Why here you consider the design flood normally distributed as in the paragraph 4 you instead consider other different distributions? Please clarify. - Page 2702, line 4, "...and a variance..". May be a letter or a symbol is missing - Page 2703, equation 5, Deterministic means you have only a single realization of the model if you regard as "the realization" Not necessarily, this is the expected value of the possible distribution. Consequently I cannot understand this equation and, also, the statement in the lines from 12 to 17 in this page. Please clarify. - Page 2703, line 18-23. This choice will increase significantly the uncertainty of flood predictions! As I said before why have you not used a 2-D model in a MC analysis to derive the probability? - Page 2704, line 19, change in "...that also takes into account.." - Page 2707, line 8, what does the word "amplitude" mean regard to a flood wave? - Page 2708, line 1, Please add the reference for the WRC recommendations. - Page 2709, line 20-23. This explanation for the roughness coefficient behavior in relation to the vegetation cover is too simple. Have you considered previous studies on this area which refer to this problem? Please supply a clearer explanation. - Page 2710, equation 6. How the the two parameters a and b have been calculated? Please supply this information - Page 2710, line 12, change "possibly" in "possible". - Page 2713, line

C932

6, quantiles of exceedance? This expression is strange! - Page 2714, line 3. It is not completely true the deterministic map has no probability assigned. The probability of the risk is the same of the probability of the flood peak (iso-frequency assumption). It is true, instead, the deterministic map has no uncertainty assigned. - Page 2714, line 23. How have you decided about this probability of exceedance? - Page 2715, line 4. Do you intend the flood peak quantile estimate?

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 1, 2695, 2013.